



TRMM Flight Operations Monthly Status Review (MSR)

November 30, 2001



FOT Subsystem Overview

- Operations Status
 - Flight Ops Summary - Lou Kurzmiller
 - Electrical - Andy Calloway
 - Thermal - Dave Sepan
 - RCS & RF / Comm. - Dave Sepan
 - ACS & FDS / C&DH - Mark Fioravanti
 - Power & Deployables - Justin Knavel
 - LIS - Justin Knavel
 - CERES & VIRS - Mark Fioravanti
 - TMI - Dave Sepan
 - PR - Andy Calloway
 - Ground System - Andy Calloway
 - Upcoming Activities - Andy Calloway



Flight Operations Summary

- Supported 528 SN events in November
 - 2 Yaw Maneuvers; now -X
 - 8 Delta-V Maneuvers
- No Anomaly Rpts, 1 Event Rpt & No Generic Late Acqs
 - AR #83: PSIB Partial Failure - Appended
 - » Seeing changes in internal resistance levels
 - ER #254: MOC H/W; LTS BED 3 Failure



Flight Operations Summary

- Notable Events
 - Developed NCC Configuration Codes for 01/04 Omni Events
 - » Included work with MOPSS System
 - Supported Leonids Mitigation effort
 - » Instrument deactivation/activation
 - Continued support of ACS pointing & control concern

- FOT continues at full staff; no apparent problems



Thermal / Electrical Subsystems

- The Thermal subsystem remains nominal
 - No operational issues since arrival at 402.5 km

- The Electrical subsystem remains nominal
 - No operational issues since arrival at 402.5 km



RCS Subsystem

- RCS performed 8 successful Delta-V maneuvers (#348 - #355)
 - Current fuel remaining is 324 kg.
 - Current High Pressure Transducer level is 269.0 psia.
- The current EOL estimate at 402.5 km is June 2004 using 157 kg of fuel as a baseline for controlled re-entry.
 - Solar Flux levels are dropping slowly.
- Upcoming Events
 - Continue to review and train with Delta-H procedure, EOL scripts, and the “one-shot” procedure.
 - Review all required steps for a 30+ minute Delta-V maneuver and test with the simulator.



RF Subsystem

- No Generic Late Acquisitions this month.
- No RF Event Reports this month.
- Frequency offsets (monthly average)
 - Transponder #1 = +698.891 Hz
 - Transponder #2 = -687.188 Hz
- Upcoming Events
 - Offset of transponder 2 frequency may occur next year.



ACS Subsystem

- ACS is performing Nominally.
- Discrepancy found in the way ACS uses the TAM to Body alignment Matrix (Table #58).
 - Correction is being developed and tested (Will use transpose of the inverse of Current version, to correct values within the table).
 - No noticeable affects for momentum unloading or TRIAD convergence in simulations by changing this table.



FDS/C&DH Subsystems

- UTCF/FS Status;
 - Two Adjustments were performed. The 1st was performed on 01-312 (Thurs., Nov 8th), and the 2nd on 01-322 (Sun., Oct 18th). The next one is expected on 01-355 (Fri., Dec 21st)
 - Current UTCF value is 31535996.813508 sec
 - A FS Adjustment was performed on 01-322 (Sun, Nov 18th). It was adjusted by 12 counts to a value of x'7DE'. The next Adjustment is expected on 02-060 (Sat., Mar 1st), and will be adjusted to x'7EA'.



FDS/C&DH Subsystems

- Planned RTS Changes
 - Nominal TDRS AOS RTS format changes to allow easier modification as DS storage status changes, and to simplify transponder offsets if required.
 - Initially will be performed with RTSs 65 - 68, other AOS RTSs may also be converted later.



Power Subsystem

- Change in PSIB B Telemetry starting on 01-319. Currently, the telemetry change occurs intermittently.
 - Battery 1 Cells 1-22
 - » Previously, Cell Voltage telemetry railed high for approximately 60 minutes out of a 92 minute orbit
 - » Now, Cell Voltage telemetry rails high for the entire orbit. Since the PSIB Anomaly last year. The telemetry has gradually railed for longer periods.
 - Battery 2 Cells 15-22
 - » Previously, Cell Voltage telemetry
 - » Now, Cell Voltage telemetry experiences brief periods of noise.
- Open issues
 - Essential Bus Voltage Monitor Backup (S/C Processor Current)
 - » Complete and uplink Filtering Code
 - Solar Array off-pointing
 - » Test Delta V and Yaw maneuvers with simulator
 - » Longer duration on-board test



Deployables Subsystem

- Solar array drives and HGA continue to operate nominally.



LIS Instrument

- One Routine MSFC real-time command request was performed on 01-317 (November 13th) to reduce packet sequence errors.
- The LIS instrument was powered off from 01-322/06:49:14z to 01-322/22:04:57z for Leonids.
- No open issues



CERES/VIRS Instruments

- **CERES.**
 - Powered OFF.
- **VIRS**, continues to operate nominally.
 - Two sets of VIRS Solar Calibrations were performed on 01-311 (Wed., Nov 7th).
 - VIRS was powered off for Leonid activities, following the power on VIRS was placed into Outgassing for the standard period of 36 hours.
 - VIRS self-reset occurred on 01-327 (Fri., Nov 23th).



TMI / PR Instruments

- No Open Issues with the TMI instrument
- There was a routine PR LNA Analysis request on November 7th (01-311) and a PR Log Amp check request on November 20th (01-324).
- A PR licensing agreement review meeting was held on November 28th at GSFC with representatives from the FOT and the Spectrum branch and the Mission Director.



Ground System

- One of the Local TPOCC Switch Bed panels experienced a failure on November 9th (ER #254) and was replaced by HW maintenance on November 14th (01-318).
- A working group has been established which includes representatives from the FOT and sustaining engineering to assess all aspects of the ground system (realtime, MP, trending/analysis, etc.) and develop a prioritized list of possibilities for upgrade and enhancements.
- STTF in Building 1 experiencing problems with FEDS cards due to long-term temperature fluctuations within the room. One or more cards may need to be sent out for repair.



Upcoming Activities

- 0-2 Months
 - Perform remaining FSW revisions due to new Kalman Filter mode of operations
 - » Table 58 TAM to Body Alignment Matrix (Completed 01-362)
 - » 2000 Epoch Magnetic Field Patch and change from 8th to 10th order
 - » Table 51 DSS Tolerance Versions
 - » Table 54 Update for Roll/Pitch/Yaw to $15^{\circ}/8^{\circ}/8^{\circ}$
 - Uplink PSIB Alternate Telemetry changes (after 58, before others above)
 - Place remaining permanent table changes into EEPROM
 - Perform SA 55° offset long-duration test
 - Install new TDRS HGA AOS RTSs



Upcoming Activities

- 2-3 Months
 - Continue trade studies for upgrading MOC ground system and software
 - End Of Life Planning, Testing, and Simulations continue
 - Continue to close open CCRs, MOCRs, and MSR Action Items